

What is claimed is:

CLAIMS

1. A computer system comprising:
 - a synchronization server for synchronizing the operation of one or more virtual test systems; and
 - one or more test client computers coupled to the synchronization server, wherein respective ones of the one or more test client computers generate first requests and second requests to the synchronization server.
2. The computer system of claim 1, wherein respective ones of the one or more virtual test systems are coupled to the respective ones of the one or more test client computers and the one or more virtual test systems are coupled to a contact center associated with contact center functions; wherein:
 - the one or more virtual test systems include at least one of a virtual telephone caller system associated with virtual telephone caller actions, a virtual agent telephone system associated with virtual agent telephone actions, a virtual agent computer system associated with virtual agent computer actions, and a virtual web user system associated with virtual web user actions; and,
 - respective ones of the first requests and respective ones of the second requests are associated with respective ones of the virtual telephone caller actions, respective ones of the virtual agent telephone actions, respective ones of the virtual agent computer actions and respective ones of the virtual web user actions.
3. The computer system of claim 2, wherein the respective ones of the first requests and the respective ones of the second requests are logically related, to provide logically related requests.
4. The computer system of claim 3, wherein the respective ones of the first requests and the respective ones of the second requests are provided having identifier key values for associating respective ones of the logically related requests.

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2 5. The computer system of claim 4, wherein the respective ones of the first requests and
3 the respective ones of the second requests are provided having number of clients values for
4 further associating respective ones of the logically related requests.

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6 6. The computer system of claim 4, wherein the synchronization server controls the one or
7 more test client computers to provide a measurement of one or more time latency values
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9 7. The computer system of claim 5, wherein the time latency values correspond to at least
10 one of a time latency value between respective ones of the virtual telephone caller actions, a
11 time latency value between respective ones of the virtual agent telephone actions, a time latency
12 value between respective ones of the virtual agent computer actions, a time latency value
13 between respective ones of the virtual web user actions, a time latency value between respective
14 ones of the virtual telephone caller actions and respective ones of the virtual agent telephone
15 actions, a time latency value between respective ones of the virtual telephone caller actions and
16 respective ones of the virtual agent computer actions, a time latency value between respective
17 ones of the virtual telephone caller actions and respective ones of the virtual web user actions, a
18 time latency value between respective ones of the virtual agent telephone actions and respective
19 ones of the virtual agent computer actions, a time latency value between respective ones of the
20 virtual agent telephone actions and respective ones of the virtual web user actions, a time
21 latency value between respective ones of the virtual agent computer actions and respective ones
22 of the virtual web user actions, a time latency value between respective ones of the virtual
23 telephone caller actions and respective ones of the contact center functions, a time latency value
24 between respective ones of the virtual agent telephone actions and respective ones of the
25 contact center functions, a time latency value between respective ones of the virtual agent
26 computer actions and respective ones of the contact center functions, a time latency value
27 between respective ones of the virtual web user actions and respective ones of the contact
28 center functions, a routing accuracy corresponding to connection between a virtual telephone
29 caller and an agent, and a display accuracy associated with an agent computer screen display.
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1 8. A synchronization method comprising::
2 generating first requests and second requests from one or more test client computers to a
3 synchronization server, for synchronizing the operation of one or more virtual test systems.
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5 9. The synchronization method of claim 8, further including:
6 generating at least one of virtual telephone caller actions with a virtual telephone caller
7 system coupled to a respective one of the one or more test client computers, virtual agent
8 telephone actions with a virtual agent telephone system coupled to a respective one of the one
9 or more test client computers, virtual agent computer actions with a virtual agent computer
10 system coupled to a respective one of the one or more test client computers, and virtual web
11 user actions with a virtual web user system coupled to a respective one of the one or more test
12 client computers; wherein:

13 the virtual telephone caller system, the virtual agent telephone system, the virtual
14 agent computer system, and the virtual web user system are coupled to a contact center
15 associated with contact center functions; and

16 respective ones of the first requests and respective ones of the second requests
17 are associated with respective ones of the virtual telephone caller actions, respective
18 ones of the virtual agent telephone actions, respective ones of the virtual agent computer
19 actions and respective ones of the virtual web user actions.
20

21 10. The synchronization method of claim 9, further including:
22 logically relating respective ones of the first requests and respective ones of the second
23 requests, to provide logically related requests.
24

25 11. The synchronization method of claim 10, further including:
26 associating respective ones of the logically related requests by relating identifier key
27 values associated with the respective ones of the logically related requests.
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29 12. The synchronization method of claim 11, further including:
30 relating number of clients values associated the respective ones of the first requests and

1 the respective ones of the second requests, to further associate respective ones of the logically
2 related requests.

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4 13. The synchronization method of claim 11, further including:

5 controlling the one or more test client computers to provide a measurement of one or
6 more time latency values.

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8 14. The synchronization method of claim 13, wherein the time latency values correspond to
9 at least one of a time latency value between respective ones of the virtual telephone caller
10 actions, a time latency value between respective ones of the virtual agent telephone actions, a
11 time latency value between respective ones of the virtual agent computer actions, a time latency
12 value between respective ones of the virtual web user actions, a time latency value between
13 respective ones of the virtual telephone caller actions and respective ones of the virtual agent
14 telephone actions, a time latency value between respective ones of the virtual telephone caller
15 actions and respective ones of the virtual agent computer actions, a time latency value between
16 respective ones of the virtual telephone caller actions and respective ones of the virtual web
17 user actions, a time latency value between respective ones of the virtual agent telephone actions
18 and respective ones of the virtual agent computer actions, a time latency value between
19 respective ones of the virtual agent telephone actions and respective ones of the virtual web
20 user actions, a time latency value between respective ones of the virtual agent computer actions
21 and respective ones of the virtual web user actions, a time latency value between respective
22 ones of the virtual telephone caller actions and respective ones of the contact center functions, a
23 time latency value between respective ones of the virtual agent telephone actions and respective
24 ones of the contact center functions, a time latency value between respective ones of the virtual
25 agent computer actions and respective ones of the contact center functions, a time latency value
26 between respective ones of the virtual web user actions and respective ones of the contact
27 center functions, a routing accuracy corresponding to connection between a virtual telephone
28 caller and an agent, and a display accuracy associated with an agent computer screen display.

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30 15. A synchronization method, including:

1 generating first requests and second requests from one or more test client computers to a
2 synchronization server;

3 associating a portion of a first software program associated with a first respective one of
4 the one or more test client computers with a respective one of the first requests having a first key
5 value;

6 associating a portion of a second software program associated with a second respective
7 one of the one or more test client computer with a respective one of the second requests having
8 the first key value;

9 transmitting the respective one of the first requests to the synchronization server;

10 transmitting the respective one of the second requests to the synchronization server;

11 identifying a matching request pair as the respective one of the first requests having the
12 first key value in combination with the respective one of the second requests having the first
13 key value;

14 transmitting a notification of the matching pair from the synchronization server to the
15 first respective one of the one or more test client computers and to the second respective one of
16 the one or more test client computers; and

17 bypassing the portion of the first software program if the notification is received by the
18 first respective one of the one or more test client computers.

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20 16. A synchronization method, including:

21 generating first requests and second requests from one or more test client computers to a
22 synchronization server;

23 associating a portion of a first software program associated with a first respective one of
24 the one or more test client computers with a respective one of the first requests having a first
25 key value and a first number of clients value;

26 associating a portion of a second software program associated with a second respective
27 one of the one or more test client computer with a respective one of the second requests having
28 the first key value and the first number of clients value;

29 transmitting the first respective one of the first requests to the synchronization server;

30 transmitting the respective one of the second test client requests to the synchronization

1 server;

2 identifying a matching request pair as the respective one of the first requests having the
3 first key value and the first number of clients value in combination with the respective one of
4 the second requests having the first key value and the first number of clients value;

5 transmitting a notification of the matching pair from the synchronization server to the
6 first respective one of the one or more test client computers and to the second respective one of
7 the one or more test client computers; and

8 pausing execution of the first software program at the portion of the first software
9 program if the notification is received by the first respective one of the one or more test client
10 computers.

11
12 17. A computer program product comprising a computer usable medium having computer
13 readable code thereon for synchronizing one or more virtual test systems, including program
14 code comprising:

15 instructions for generating first requests and second requests from one or more test
16 client computers to a synchronization server.

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18 18. The computer program product of claim 17, including:

19 instructions for generating at least one of virtual telephone caller actions with a virtual
20 telephone caller system coupled to a respective one of the one or more test client computers,
21 virtual agent telephone actions with a virtual agent telephone system coupled to a respective
22 one of the one or more test client computers, virtual agent computer actions with a virtual agent
23 computer system coupled to a respective one of the one or more test client computers, and
24 virtual web user actions with a virtual web user system coupled to a respective one of the one or
25 more test client computers; wherein:

26 the virtual telephone caller system, the virtual agent telephone system, the virtual
27 agent computer system, and the virtual web user system are coupled to a contact center
28 associated with contact center functions; and

29 respective ones of the first requests and respective ones of the second requests
30 are associated with respective ones of the virtual telephone caller actions, respective

ones of the virtual agent telephone actions, respective ones of the virtual agent computer actions and respective ones of the virtual web user actions.

19. The computer program product of claim 18, further including:
instructions for logically relating respective ones of the first requests and respective ones of the second requests, to provide logically related requests.

20. The computer program product of claim 19, further including:
instructions for associating respective ones of the logically related requests by relating identifier key values associated with the respective ones of the logically related requests.

21. The computer program product of claim 20, further including:
instructions for relating number of clients values associated the respective ones of the first requests and the respective ones of the second requests, to further associate respective ones of the logically related requests.

22. The computer program product of claim 20, further including:
instructions for controlling the one or more test client computers to provide a measurement of one or more time latency values.

23. The computer program product of claim 22, wherein the time latency values correspond to at least one of a time latency value between respective ones of the virtual telephone caller actions, a time latency value between respective ones of the virtual agent telephone actions, a time latency value between respective ones of the virtual agent computer actions, a time latency value between respective ones of the virtual web user actions, a time latency value between respective ones of the virtual telephone caller actions and respective ones of the virtual agent telephone actions, a time latency value between respective ones of the virtual telephone caller actions and respective ones of the virtual agent computer actions, a time latency value between respective ones of the virtual telephone caller actions and respective ones of the virtual web user actions, a time latency value between respective ones of the virtual agent telephone actions

1 and respective ones of the virtual agent computer actions, a time latency value between
2 respective ones of the virtual agent telephone actions and respective ones of the virtual web
3 user actions, a time latency value between respective ones of the virtual agent computer actions
4 and respective ones of the virtual web user actions, a time latency value between respective
5 ones of the virtual telephone caller actions and respective ones of the contact center functions, a
6 time latency value between respective ones of the virtual agent telephone actions and respective
7 ones of the contact center functions, a time latency value between respective ones of the virtual
8 agent computer actions and respective ones of the contact center functions, a time latency value
9 between respective ones of the virtual web user actions and respective ones of the contact
10 center functions, a routing accuracy corresponding to connection between a virtual telephone
11 caller and an agent, and, and a display accuracy associated with an agent computer screen
12 display.

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14 24. A computer program product comprising a computer usable medium having computer
15 readable code thereon for synchronizing one or more test client computers, including program
16 code comprising:

17 instructions for generating first requests and second requests from one or more test
18 client computers to a synchronization server;

19 instructions for associating a portion of a first software program associated with a first
20 respective one of the one or more test client computers with a respective one of the first requests
21 having a first key value;

22 instructions for associating a portion of a second software program associated with a
23 second respective one of the one or more test client computer with a respective one of the
24 second requests having the first key value;

25 instructions for transmitting the respective one of the first requests to the
26 synchronization server;

27 instructions for transmitting the respective one of the second requests to the
28 synchronization server;

29 instructions for identifying a matching request pair as the respective one of the first
30 requests having the first key value in combination with the respective one of the second

1 requests having the first key value;
2 instructions for transmitting a notification of the matching pair from the synchronization
3 server to the first respective one of the one or more test client computers and to the second
4 respective one of the one or more test client computers; and
5 instructions for bypassing the portion of the first software program if the notification is
6 received by the first respective one of the one or more test client computers.
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8 25. A computer program product comprising a computer usable medium having computer
9 readable code thereon for synchronizing one or more test client computers, including program
10 code comprising:

11 instructions for generating first requests and second requests from one or more test
12 client computers to a synchronization server;

13 instructions for associating a portion of a first software program associated with a first
14 respective one of the one or more test client computers with a respective one of the first
15 requests having a first key value and a first number of clients value;

16 instructions for associating a portion of a second software program associated with a
17 second respective one of the one or more test client computer with a respective one of the
18 second requests having the first key value and the first number of clients value;

19 instructions for transmitting the first respective one of the first requests to the
20 synchronization server;

21 instructions for transmitting the respective one of the second test client requests to the
22 synchronization server;

23 instructions for identifying a matching request pair as the respective one of the first
24 requests having the first key value and the first number of clients value in combination with the
25 respective one of the second requests having the first key value and the first number of clients
26 value;

27 instructions for transmitting a notification of the matching pair from the synchronization
28 server to the first respective one of the one or more test client computers and to the second
29 respective one of the one or more test client computers; and

30 instructions for pausing execution of the first software program at the portion of the first

- 1 software program if the notification is received by the first respective one of the one or more
- 2 test client computers.